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In this paper it is shown that between the basal Eocene deposits, or Midway Stage, and the uppermost Cretaceous, there is in the southern states a decided break, both stratigraphic and faunal, so that not a single species is known certainly to have crossed from one formation to the other. These initial beds of the Eocene are treated both geologically and faunally by Professor Harris. The field investigations were carried on in the states of Texas, Arkansas, Tennessee, Mississippi, Alabama, and Georgia. From his studies Professor Harris is led to believe that a considerable time interval elapsed between the close of the Cretaceous deposition and the beginning of the Eocene deposition in the Mississippi basin, and that wherever good contact exposures are found, there may be found, on careful study, ample evidence of non-conformity.

This initial Eocene fauna is discussed at length, all the old species of Mollusca and many new ones are described and figured.

5. "A reprint of the palæontological writings of Thomas Say; with an introduction, by G. D. Harris. Pp. 271-354. Plates XXVI-XXXII. (December 7, 1896.)

The republication of these papers, originally published from 1819 to 1825, long since out of print and accessible only in the larger libraries, will be appreciated by all those who have had occasion to refer to such literature, and have been unable to find access to it. The following papers are republished, word for word, line for line, and page for page, as written and punctuated by the original author:

1 and 2. "Observations on some species of zoöphites, shells, etc., principally fossil. *Am. Jour. Sci.*, 1st ser., Vols. I and II (1819-1820).

3. "Fossil shells found in a shell mass from Anastasia Island." *Jour. Acad. Nat. Sci., Phil.*, 1st ser., Vol. IV (1824).

4. "An account of some fossil shells of Maryland." *Jour. Acad. Nat. Sci. Phil.*, 1st ser., Vol. IV (1824).

5. "On two new genera and several species of Crinoidea." *Jour. Acad. Nat. Sci. Phil.*, 1st ser., Vol. IV (1825). STUART WELLER.

Eocene Deposits of the Middle Atlantic Slope in Maryland, Delaware and Virginia. By WM. BULLOCK CLARK. U. S. Geol. Sur., Bull. 141, 167 pp., 40 pls., 1896.

During the first half of the century the Tertiary formations of eastern United States were among the most carefully studied and best

known deposits of the country. However, for nearly two generations little has been done to extend our knowledge of these interesting beds. Since the brilliant work of Rogers and Conrad ceased practically nothing has been attempted in the way of keeping the information regarding these strata abreast of the times. It is, then, with peculiar pleasure that the recent revival of interest in these formations is noted; and none of the late contributions is more welcome than the one just issued, on the Eocene of the Middle Atlantic region.

The memoir contains a complete review of the literature and results of past observations in this field. The author exhaustively investigates both the stratigraphy and the fauna of this important member of the coastal plain series. He traces the limits of the formation from its most northern occurrence in Delaware across Maryland into Virginia, where it gradually becomes buried beneath later formations.

A detailed study of the 300 feet of Eocene deposits in the central portion of the district shows two distinct faunas, which are named the Aquia Creek and the Woodstock faunas, the former occupying a sequence of beds extending some 60 feet from the base of the formation, while the latter apparently does not reach quite to its upper limits. The Aquia Creek stage, which contains an assemblage of forms closely allied to the middle Lignitic, probably stands, with its underlying poorly fossiliferous zone, as an equivalent, in a broad way, of the whole of the Lignitic of the Gulf; while the Woodstock stage, which contains a group of forms closely allied to the *Ostrea sellæformis* zone of the Claiborne, stands, with the overlying and underlying beds, as the equivalent, in a broad way, of the Buhrstone and Claiborne, yet it is not assumed that the lower and upper beds are exactly synchronous with the lowest portions of the Lignitic and the highest portions of the Claiborne. The much slower accumulation of the Atlantic coast materials is shown in the fact that in Alabama more than 600 feet of deposits are found between the two fossiliferous horizons above cited, while in Maryland and Virginia a thickness of but little over 100 feet is found, and without the differentiation into the fossiliferous zones which characterizes the Gulf area. The middle Atlantic Slope Eocene, therefore, represents, according to the author, only the Lignitic, Buhrstone, and Claiborne of the Alabama geologists.

These results, together with others lately obtained in a study of the Cretaceous strata throw much light upon the character of sedimentation

along the Atlantic coast during the late Mesozoic and early Cretaceous time.

Regarding the criteria of correlation which were followed the author significantly remarks:

"As the different methods of correlation are examined in retrospect, the interdependence which exists between the various classes of physical and biological criteria becomes clearly manifest.

"The faunal and floral characteristics of a formation find their full interpretation only as the physical factors are clearly understood, since the geological and geographical range of forms is determined to a large extent by conditions of sedimentation. The physical characters of a formation therefore bear a close relationship to its contained fossils, and cannot be ignored in the correlation of the deposits.

"Although the most trustworthy correlations are based upon palæontological data, the possibilities of variation in the succession of organic forms, in two distant areas, are so great that detailed correlations can seldom be satisfactorily attempted, even where general equivalence is recognized.

"The geologist, therefore, must take into consideration both the geological and the palæontological criteria in the correlation of the sedimentary rocks. No class of facts can be ignored."

CHARLES R. KEYES.

The Elevated Reef of Florida. By ALEXANDER AGASSIZ. *With Notes on the Geology of Southern Florida.* By LEON S. GRISWOLD. Bull. Mus. Comp. Zoöl., Vol. XXXVIII, No. 2 (pp. 29-62, 26 plates).

The work upon which this double paper is based consists of a trip made by Mr. Agassiz somewhat over two years ago, and one made by Mr. Griswold early in 1896. The purpose of the latter was to clear up if possible, some of the obscurity which surrounds the geology of the Everglades. The paper opens up much that is new in the story of the organic portion of the peninsula; and it is to be regretted that low water prevented Mr. Griswold from reaching Long Key, which was one of the most important goals.

The reef has been elevated from six to twenty feet, the amount decreasing southward. At Key West the coastal plain is found at a depth of 50 feet (Pliocene), while Eocene strata are 700 feet from the